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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/567,260

02/06/2006

Alexander Kraus

87209

3060

22242 7590 02/20/2009  
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EXAMINER

CHOI, LING SIU

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

02/20/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/567,260	<b>Applicant(s)</b> KRAUS ET AL.	
	<b>Examiner</b> Ling-Siu Choi	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>02/06/2006</u> .  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. This Office Action is in response to the Preliminary Amendment filed 02/06/2006. Claim 12 has been added and claims 1-12 are now pending, which are drawn to dispersants.

#### *Specification*

2. The disclosure is objected to because of the following informalities: page 14, between lines 22 and 23, a subtitle "**BRIEF DESCRIPTION OF DRAWINGS**" is missing.

Appropriate correction is required.

#### *Claim Objections*

3. Claims 1-12 are objected to because of the following informalities: (A) Claim 1, line 13, "Y+0 or NR<sup>2</sup>" is suggested to be changed to -Y= O or NR<sup>2</sup>--; (B) Claim 1, line 14, "a C<sub>1-12</sub>-alkyl radical" is suggested to be changed to -- a C<sub>1-12</sub>-alkyl radical--; and (C) Claim 1, line 34, "-O-CO-O-, " is suggested to be changed to -- -O - CO - O -. --.

Appropriate correction is required.

**Claim Analysis**

4. Summary of Claim 1:

<b>Dispersants</b> for aqueous suspensions of solids comprising random comb polymers obtained by free-radical copolymerization according to <u>catalytic chain transfer method (CCT)</u> of																	
A	<p><u>vinyl poly(alkylene oxide) compound (A)</u> of the general formula</p> $R^1-O\{C_mH_{2m}O\}_{n-1}-C_mH_{2m}-Z$ <table> <tr> <td><math>R^1</math></td><td>hydrogen, a C<sub>1-20</sub>-alkyl radical, a cycloaliphatic C<sub>5-20</sub>-cycloalkyl radical, a substituted or unsubstituted C<sub>6-14</sub>-aryl radical,</td></tr> <tr> <td>m</td><td>2 - 4,</td></tr> <tr> <td>n</td><td>1 - 250,</td></tr> <tr> <td>Z</td><td> <math display="block">  \begin{array}{c}  O \\     \\  Y - C - C = C_mH_{2m'} \\    \\  C_nH_{2n'+1}  \end{array}  </math> <table> <tr> <td>Y</td><td>O or NR<sup>2</sup>,</td></tr> <tr> <td>R<sup>2</sup></td><td>hydrogen, a C<sub>1-12</sub>-alkyl radical, a C<sub>6-14</sub>-aryl radical, -C<sub>m</sub>H<sub>2m</sub>-(O-C<sub>m</sub>H<sub>2m</sub>)<sub>n-1</sub>OR<sup>1</sup>,</td></tr> <tr> <td>m'</td><td>1 - 4</td></tr> <tr> <td>n'</td><td>0 - 2,</td></tr> </table> </td></tr> </table>	$R^1$	hydrogen, a C <sub>1-20</sub> -alkyl radical, a cycloaliphatic C <sub>5-20</sub> -cycloalkyl radical, a substituted or unsubstituted C <sub>6-14</sub> -aryl radical,	m	2 - 4,	n	1 - 250,	Z	$  \begin{array}{c}  O \\     \\  Y - C - C = C_mH_{2m'} \\    \\  C_nH_{2n'+1}  \end{array}  $ <table> <tr> <td>Y</td><td>O or NR<sup>2</sup>,</td></tr> <tr> <td>R<sup>2</sup></td><td>hydrogen, a C<sub>1-12</sub>-alkyl radical, a C<sub>6-14</sub>-aryl radical, -C<sub>m</sub>H<sub>2m</sub>-(O-C<sub>m</sub>H<sub>2m</sub>)<sub>n-1</sub>OR<sup>1</sup>,</td></tr> <tr> <td>m'</td><td>1 - 4</td></tr> <tr> <td>n'</td><td>0 - 2,</td></tr> </table>	Y	O or NR <sup>2</sup> ,	R <sup>2</sup>	hydrogen, a C <sub>1-12</sub> -alkyl radical, a C <sub>6-14</sub> -aryl radical, -C <sub>m</sub> H <sub>2m</sub> -(O-C <sub>m</sub> H <sub>2m</sub> ) <sub>n-1</sub> OR <sup>1</sup> ,	m'	1 - 4	n'	0 - 2,
$R^1$	hydrogen, a C <sub>1-20</sub> -alkyl radical, a cycloaliphatic C <sub>5-20</sub> -cycloalkyl radical, a substituted or unsubstituted C <sub>6-14</sub> -aryl radical,																
m	2 - 4,																
n	1 - 250,																
Z	$  \begin{array}{c}  O \\     \\  Y - C - C = C_mH_{2m'} \\    \\  C_nH_{2n'+1}  \end{array}  $ <table> <tr> <td>Y</td><td>O or NR<sup>2</sup>,</td></tr> <tr> <td>R<sup>2</sup></td><td>hydrogen, a C<sub>1-12</sub>-alkyl radical, a C<sub>6-14</sub>-aryl radical, -C<sub>m</sub>H<sub>2m</sub>-(O-C<sub>m</sub>H<sub>2m</sub>)<sub>n-1</sub>OR<sup>1</sup>,</td></tr> <tr> <td>m'</td><td>1 - 4</td></tr> <tr> <td>n'</td><td>0 - 2,</td></tr> </table>	Y	O or NR <sup>2</sup> ,	R <sup>2</sup>	hydrogen, a C <sub>1-12</sub> -alkyl radical, a C <sub>6-14</sub> -aryl radical, -C <sub>m</sub> H <sub>2m</sub> -(O-C <sub>m</sub> H <sub>2m</sub> ) <sub>n-1</sub> OR <sup>1</sup> ,	m'	1 - 4	n'	0 - 2,								
Y	O or NR <sup>2</sup> ,																
R <sup>2</sup>	hydrogen, a C <sub>1-12</sub> -alkyl radical, a C <sub>6-14</sub> -aryl radical, -C <sub>m</sub> H <sub>2m</sub> -(O-C <sub>m</sub> H <sub>2m</sub> ) <sub>n-1</sub> OR <sup>1</sup> ,																
m'	1 - 4																
n'	0 - 2,																
B	<p><u>an ethylenically unsaturated monomer compound (B)</u> of the general formula</p> $  \begin{array}{c}  R^4 \quad R^6 \\  \diagdown \quad \diagup \\  C = C \\  \diagup \quad \diagdown \\  R^3 \quad R^5  \end{array}  $																

Art Unit: 1796

R <sup>3</sup>	H, CH <sub>3</sub> , COOH or a salt thereof, COOR <sup>7</sup> or CONR <sup>7</sup> R <sup>7</sup> ,
R <sup>4</sup>	H, a substituted or unsubstituted C <sub>6-14</sub> -aryl radical,
R <sup>5</sup>	H, CH <sub>3</sub> , COOH or a salt thereof, COOR <sup>7</sup> , CONR <sup>7</sup> R <sup>7</sup> , a substituted or unsubstituted aryl radical or OR <sup>8</sup> , PO <sub>3</sub> H <sub>2</sub> , SO <sub>3</sub> H, CONH-R <sub>9</sub> ,
R <sup>6</sup>	H, CH <sub>3</sub> or CH <sub>3</sub> COOR <sub>7</sub> ,
R <sup>7</sup>	H, C <sub>1-12</sub> -alkyl, C <sub>1-12</sub> -hydroxyalkyl, C <sub>1-12</sub> -alkylphosphate or phosphonate or a salt thereof, C <sub>1-12</sub> --alkylsulfate or -sulfonate or a salt thereof, C <sub>m</sub> H <sub>2m</sub> -(-O - C <sub>m</sub> H <sub>2m</sub> ) <sub>n-1</sub> -OR <sup>1</sup> ,
R <sup>8</sup>	acetyl and
R <sup>9</sup>	C <sub>1-12</sub> -alkylphosphate or-phosphonate or a salt thereof, C <sub>1-12</sub> -alkylsulfate or -sulfonate or a salt thereof,
R <sup>3</sup> and R <sup>5</sup> together form -O-CO-O-.	

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

**A person shall be entitled to a patent unless –**

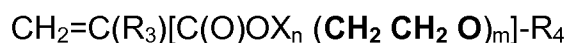
**(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.**

6. Claims 1-4 , 8, 11, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Ma et al. (US 6,117,921).

Ma et al. disclose a graft copolymer dispersant having a backbone portion and at least one sidechain portion, wherein (A) both portions are prepared from ethylenically unsaturated monomers; (B) the sidearm portion is hydrophilic and the backbone portion

Art Unit: 1796

is hydrophobic: the sidearm portion being derived from a non-ionic hydrophilic or water soluble monomer having the formula



wherein  $n = 0$  or  $1$ ;  $m = 1$  to  $100$ ;  $X$  = an alkyl, aryl, or alkylaryl diradical  $\text{C}_{1-9}$

connecting group;  $\text{R}_3 = \text{H}$  or  $\text{CH}_3$ ; and  $\text{R}_4 = [\text{H}$  and  $\text{C}_{1-4}$  alkyl groups]; the hydrophobic portion being prepared from at least one monomer having the following formulae:

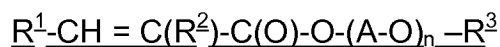


$\text{R}_1 = [\text{H}$  and  $\text{CH}_3]$ ;  $X = [\text{N}$  and  $\text{O}]$ ; when  $X = \text{N}$ ,  $\text{R}_2$  and  $\text{R}_3 = [\text{H}$ , substituted alkyl, substituted aryl, substituted alkylaryl, unsubstituted alkyl, unsubstituted aryl and unsubstituted alkylaryl groups] provided that either  $\text{R}_2$  or  $\text{R}_3$  contains at least one aryl or alkylaryl group; when  $X = \text{O}$ ,  $\text{R}_2$  does not exist and  $\text{R}_3 = [\text{substituted aryl}$ , substituted alkylaryl groups, unsubstituted aryl and unsubstituted alkylaryl groups]; and  $\text{R}_4 = [\text{substituted aryl}$ , substituted alkylaryl groups, unsubstituted aryl and unsubstituted alkylaryl groups] (claims 1-2 and 13). Ma et al. further disclose that diaquabis(borondifluorodiphenyl glyoximate) cobaltate (II), a catalytic chain transfer agent, is used in polymerizing the non-ionic hydrophilic monomer and the hydrophobic monomer, (col. 6, lines 48-67; Example 1). Thus, the present claims are anticipated by the disclosure of Ma et al.

It is noted that the present claims are drawn to a product-by-process claims. The caselw has held that " **[t]he patentability of a product does not depend on its method of production**. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Thus, the recitation "according to catalytic chain transfer method (CCT)" does not carry the patentable weight. As such, the following rejections are made.

7. Claim 1 and 3-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Kroner et al. (US 6,756,471 B1).

Kroner et al. disclose a water-soluble copolymer as a dispersant for finely divided inorganic substance, the water-soluble copolymer comprising **(A)** one or more esters of formula:



wherein  $R^1$  and  $R^2$  are identical or different and are H or  $CH_3$ , A is an alkylene group having from 2 to 4 carbon atoms or is  $CH_2CH_2CH_2CH_2$ ,  $R^3$  is C<sub>1-50</sub> alkyl or C<sub>1-18</sub> alkylphenyl, and n is a number from 2 to 300 and **(B)** at least one monoethylenically unsaturated carboxylic acid or salts thereof; wherein component (a) is one or more esters of methacrylic acid and methylpolyethylene glycol having molecular weights of from 350 to 10,000 and component (b) is methacrylic acid; and wherein the weight ratio of component (a) and component (b) is from 98:2 to 2:98 (claims 3-5). Thus, the present claims are anticipated by the disclosure of Kroner et al.

Art Unit: 1796

8. Claim 1-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Satoh et al. (US 2001/0012864 A1).

Satoh et al. disclose a concrete composition comprising a copolymer as a dispersant, obtained by copolymerizing **(A)** at least one monomer represented by



each of  $R_1$  and  $R_2 = H$  or a methyl group;  $m =$  a number selected from 0 to 2;  $R_3 = H$  or  $-COO(AO)_nX$ ;  $p = 0$  or 1;  $AO = C_{2-4}$  oxyalkylene or an oxystyrene group;  $n =$  a number selected from 2 to 300; and  $X = H$  or an  $C_{1-18}$  alkyl group; and **(B)** at least one monomer represented by



each of  $R^4$ ,  $R^5$  and  $R^6 = H$ , a methyl group or  $-(CH_2)_{m1}COOM_2$ , in which  $-(CH_2)_{m1}COOM_2$  may be cooperated with  $COOM_1$  or another  $(CH_2)_{m1}COOM_2$  to produce an anhydride, in this case,  $M_1$  and  $M_2$  in these groups are not present, each of  $M_1$  and  $M_2 = H$ , an alkali metal, an alkaline earth metal, an ammonium group, an alkylammonium group or a substituted alkylammonium group, and  $m1$  is a number selected from zero to 2; wherein an average ratio of (A) to (B) by weight ranges between 30/70 and 99/1 in the total monomers. ([0022]; claims 1-4). Thus, the present claims are anticipated by the disclosure of Satoh et al.

9. Claim 1-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Naramoto et al. (US 6,296,698 B1).

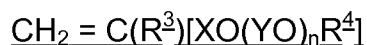


Art Unit: 1796

Naramoto et al. disclose a cement admixture comprising a copolymer as a dispersant, obtained by polymerizing a monomer mixture comprising: (A) 2 to 85% by weight of a monomer represented by general formula:



wherein  $\text{R}^1$  and  $\text{R}^2 = \text{H}$  or a methyl group; **(B)** 90 to 10% by weight of one or more monomers represented by general formula;



wherein  $\text{R}^3 = \text{H}$  or a methyl group,  $\text{X} = -\text{C}(=\text{O})-$  or  $-\text{CH}_2-$ ,  $\text{Y} = \text{C}_{2-4}$  alkylene group,  $\text{R}^4 = \text{H}$  or an  $\text{C}_{1-5}$  alkyl group, and  $n =$  an integer of from 2 to 100, and **(C)** 5 to 50 wt% of a vinyl monomer containing a carboxylic acid group, or a salt of a carboxylic acid group; or a sulfonic acid group, or a salt of a sulfonic acid group, wherein the sum of the monomers (A), (B) and (C) is 100% by weight (col. 2, lines 21-28; claim 1). Thus, the present claims are anticipated by the disclosure of Naramoto et al.

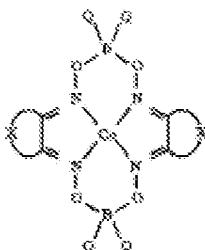
### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Muir et al. (US 5,684,101).

Muir et al. disclose a process for the free-radical polymerisation of at least one olefinically unsaturated monomer using a free-radical initiator, the polymerisation being performed in the presence of a compound for effecting molecular weight control,

Art Unit: 1796

wherein the molecular weight control compound is a Co II chelate of the following formula:



wherein each group Q is independently selected from F, Cl, Br, OH, C<sub>1-12</sub> alkoxy, aryloxy, C<sub>1-12</sub> alkyl and aryl (claim 1). However, Muir et al. do not teach or fairly suggest the claimed dispersant.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

/Ling-Siu Choi/

Primary Examiner, Art Unit 1796

February 15, 2009

Application/Control Number: 10/567,260  
Art Unit: 1796

Page 10